Social Foundations of Equality: How Civic Cohesion Shapes the Income Inequality and Mobility Link

CONSENSUS

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Abstract

Income inequality and economic mobility have long been linked, but the explanations often misregard the social and institutional foundations that reflect upon the economic structure. This study examines whether the countries with higher *civic cohesion* displays lower inequality and higher economic mobility. In the absence of an economic parameter that measures civic cohesion, we build an empirical *Civic Cohesion Index* using Gallup World Poll, World Values Survey, and World Bank Indicators through unsupervised and supervised learning methods, and test their relationship with income inequality (Gini) and intergenerational income elasticity (IGE). We build a pooled dataset of 78 nations (2010–2023), and (1) validate the Great Gatsby Curve, (2) observe that the Great Gatsby Curve exhibits clusters, (3) reveal that stronger civic cohesion significantly explains the negative relationship between inequality and mobility, which remains robust across alternative specifications.

Keywords: Inequality, Intergenerational Mobility, Civic Cohesion, Social Capital

JEL Classification: D31, D63, J62

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1 Introduction

Income inequality lies at the center of economic and political research, as it is one of the widespread factors affecting the long-term financial stability of nations. High income inequality weakens the foundations of economic growth sustainability by leading to the erosion of human capital, weakening demand, destabilizing politics, and distorting institutions (Bénabou, 1996; Perotti, 1996). Additionally, the equal distribution of wealth within a nation is crucial for attaining and sustaining intergenerational welfare, as it represents a long-term step toward prosperity. Hence, income inequality not only affects individuals who are experiencing it today, but also individuals who will be born tomorrow, since it is easily transferred across generations (Piketty, 2013); therefore, it is an intergenerational problem. This fact makes income inequality even more concerning, as it becomes a self-reinforcing mechanism that perpetuates and amplifies itself in the next generation (Galor and Zeira, 1993).

The primary reason why income inequality is passed down to future generations is that it creates a barrier for equality of opportunity through channels such as inheritance, asymmetric access to education, and parental education differences (Palomino et al., 2023; Bloome, 2015; Pfeffer and Hertel, 2015; Mazumder, 2005). An extensive body of research highlights a mechanism in which richer families invest more in their children's human capital earlier, thereby amplifying the overall compounding effects of schooling differences that lead to observable differences in lifetime earnings (Acemoglu and Pischke, 2004; Bishop et al., 2014; Chetty et al., 2016; Connolly et al., 2019). This heterogeneity is evident in the literature on social capital mentioned above. Intuitively, the reason why this deviation exists is that higher-income parents can afford to raise their children in a higher welfare standard, whereas lower-income parents cannot; for this reason, children in different income level families usually do not have access to the same opportunities for education and other factors that contribute to their future income level. It raises the question of whether children from different income levels receive more or less from their parents, a concept explored through the concept of intergenerational mobility.

The link between income inequality and income mobility has been a key to exploring the concept of *intergenerational mobility*, which refers to the mobility of lifetime individual earnings across generations. The concept, used in conjunction with overlapping-generations models, shows that the borrowing constraints of parents and the structural changes in early education and skill formation shape individuals' intertemporal income (Qin et al., 2016; Lee and Seshadri, 2019; Yang and Qiu, 2016). Although the concept had many implications, one form that was particularly influential in terms of insight was cross-country implications. In his seminal work, Corak (2013) identified a robust cross-country pattern known as the Great Gatsby Curve (see Figure 1). The curve suggests that societies with higher levels of income inequality tend to exhibit lower levels of intergenerational mobility. The curve shows this result using Gini coefficients and intergenerational elasticity on the axes. Intergenerational

elasticity is a measure of how elastic the economic status of a generation is to that of its parents. Note that higher elasticity corresponds to lower upward income mobility. This implies that in societies with high income inequality, individuals are less likely to improve their economic standing compared to their parents.

Despite the curve's conceptual consistency and success in establishing a positive, robust link between income inequality and intergenerational elasticity, it still fails to explain the gap between clusters of countries that share similarities in geopolitical or even cultural features. To illustrate this problem more clearly, consider the example of two countries that share a very common and significant history: Slovenia and Serbia. Both countries have post-socialist backgrounds, characterized by centrally planned economic regimes. Moreover, they faced similar structural shocks during the 1990s, as well as geopolitical risks. These similarities raise a question of whether these countries should display similar measures of welfare and perhaps be located near each other on the Great Gatsby Curve. While standard macroeconomic indicators show that Slovenia substantially outperformed Serbia over the last two decades in terms of income levels, growth, and unemployment (see Table 1), the intergenerational elasticity differs only modestly between the two countries. The first question that comes to mind is whether differences in intergenerational elasticity for these two countries can explain this divergence. As previous research suggests, welfare differences and even income inequality levels cannot be explained solely through mobility levels; however, an indirect effect may reveal a detailed link (Milanovic, 2016; Brandolini et al., 2018).

What is also interesting is that Serbia has a slightly lower intergenerational elasticity level of 22 percent compared to Slovenia's 25 percent, despite its significantly higher unemployment rate. This is particularly interesting when considering persistent unemployment as a trigger factor for income inequality. Alternatively, the natural response would be that Slovenia's accession to the European Union in 2004 had this effect. However, the time frame of Corak (2013) captures two generations that were not exposed to this effect, meaning that this also does not provide a sufficient explanation for the differences in these countries. Hence, this concrete case shows mobility is a variable that explains a particular form of inequality, but not the whole story.

One remark is that the example of Slovenia and Serbia is not the only instance where the Great Gatsby link fails to provide an answer. Therefore, we don't want to offer micro examples from the given setting, but rather to capture a behavior that is not only a statistical outcome, but also to understand the reasons behind why certain countries face higher inequality, combined with persistence. In other words, we are motivated to capture the underlying patterns in the Great Gatsby Curve through a better lens. Later, this study shows that another variable can actually support the idea and augment it in certain ways.

Filling this gap has been the source of motivation for our study, as it raises the following question: Why do some countries with similar economic structures and intergenerational mobility outcomes exhibit different levels of income inequality? This question challenges

the notion that economic parameters alone can account for variations in social mobility. In this study, we argue that various social and institutional dynamics, specifically encompassed in the comprehensive social concept of "civic cohesion," answer our question and fill the gap not explained by the Great Gatsby Curve. Civic cohesion reflects a country's state of social unity, degree of inclusion, trust, and cooperation of members of a society and between citizens and institutions (Knack and Keefer, 1997; Porta et al., 1997; Putnam, 2000). Our focus is particularly on the concept of civic cohesion, as it is a crucial social factor that encompasses not only the impact of institutions on welfare, but also the two-way relationship between individuals and institutions on welfare. We hypothesize that civic cohesion enlightens missing connections in important links, such as the inequality-mobility link. It is a broad term that encompasses significant dimensions that occur over long periods of time, which we believe captures the intergenerational effects of social mechanisms that can answer our central question.

Although the term "civic cohesion" was conceptualized in the previously mentioned work, it was not quantified or aggregated into a single, pure index. Hence, as we aim to build on this literature, we construct our own original index of civic cohesion to capture social dynamics across countries. Our civic cohesion index combines various measures of trust, participation, social and institutional inclusion, and state legitimacy. Then, examining how these measures contribute to income inequality within a nation, our study seeks to bridge the economic, political, and sociological perspectives on differences in income inequality. Hence, this paper contributes to existing literature by displaying that civic cohesion explains heterogeneity in the Great Gastby Curve among countries with similar intergenerational mobility levels.

The paper proceeds with the following structure: Section 2 reviews the related literature on income inequality, intergenerational mobility, and the role of social factors on these two terms. Section 3 describes the data sources and introduces the aggregation and novel construction of the Civic Cohesion Index, or CCI, as well as the empirical method. Section 4 presents the main results, including the validation of the Great Gatsby Curve under various settings, such as for more countries and time frames, and the identification of three distinct clusters of countries. Section 5 discusses the results, possible future directions, and concludes the paper.

2 Literature

Understanding and measuring economic opportunities have been vital, and through the use of intergenerational mobility, researchers have produced numerous studies on this topic. One of the primary studies of Breen and Jonsson (2005) argues that socioeconomic levels of one's parents have a positive effect on their earnings. Pfeffer and Hertel (2015) and Mazumder (2005) show empirically aligned results in different settings as well. From a social perspective, Pfeffer and Hertel (2015) find that education expansions in the U.S. have positively

contributed to mobility through effects that reduced the link between parental class and occupational differences. Mazumder (2005) and Durlauf (1996) demonstrate that economic inequality persistence is stronger than previously suggested. Additionally, a body of research has argued that the variable intergenerational mobility is an empirically appropriate tool for capturing the relationship between income inequality levels and welfare measures (Dolan and Lordan, 2021; Bishop et al., 2014; Bar-Haim, 2018). All of these factors make intergenerational mobility an essential concept to investigate in relation to income inequality.

Solon (2002) laid the foundation for the Great Gatsby Curve, which was previously mentioned as the source of motivation for our study. Solon's comparison of income mobilities employs both empirical and theoretical methods, demonstrating that the U.S. and U.K. have lower social mobility rates compared to Nordic countries. This finding establishes the basis for Corak (2013), which links income inequality with mobility on the Great Gatsby Curve. Another study on income mobility and regional differences was conducted by Chetty et al. (2014), who used federal income tax records as a data source for the incomes of more than 40 million children and their parents to investigate how income mobility varies across different regions in the United States. He explored the factors related to upward mobility, finding that in the United States, areas with higher mobility are linked with lower segregation, lower income inequality, better elementary schools, higher social capital, and stronger family stability. As mentioned, we believed that a comprehensive social factor capturing dimensions that explore the two-sided relationship between institutions and individuals should fill the gap that the Great Gatsby Curve could not. Thus, the results of this work support the argument we make in our study regarding the explanatory power of civic cohesion over the income inequality-mobility link.

Although there are papers (Nam, 2018; Bloome, 2015) questioning that the relationship between equality and income mobility may be weak in several national models, multiple studies (Nybom and Stuhler, 2016; Neidhöfer, 2019; Chen et al., 2017; Carmichael et al., 2020; Connolly et al., 2019) have shown significant results in many geographies and cultures including North Europe, Canada, Netherlands and Latin America supporting that the income inequality-mobility link is not just a local phenomenon. This link should also be investigated within a cross-country analysis, because examining multiple national contexts and making cross-country comparisons allows for disentangling the influence of structural inequality, welfare institutions, and cultural norms on intergenerational outcomes. These reveal whether the negative association between income inequality and upward mobility is a universal economic mechanism driven by differences in participation, trust, and inclusion of institutions. As mentioned, throughout this study, we highlight that these differences can be accumulated into and explained by an index of civic cohesion, which can have the power to explain why countries with the same or similar intergenerational mobility levels display different Gini coefficients. This would not be possible without an international approach. Moreover, findings from such approaches may suggest which social or political solutions to focus on to reduce the

persistence of inequality, such as redistributive policies or participation-encouraging policies. This indicates that cross-country analysis can lead to highly valuable insights into how national policies should be shaped to promote more equitable intergenerational mobility levels (Blanden, 2013). Hence, investigating the income inequality-mobility relationship through a global lens deepens our understanding of why income inequality is worth examining and how and why opportunity structures differ across societies.

Putnam (2000) worked on how declining social participation, measured using diverse social indicators such as volunteering, club activities, and charity work, has consequences on U.S democracy, social well-being, and economic outcomes. Additionally, Sintos et al. (2024) points out that civic participation affects the political decision-making mechanism, promoting collective interests and social benefits, which directly influence the persistence of equality between generations. In this cross-country analysis of 60 nations, he demonstrates that higher levels of civic participation, as measured through indicators such as membership in associations and NGOs, are significantly associated with lower income inequality. He argues that civic participation enhances the accountability and responsiveness of political systems in nations. Accordingly, this leads to more inclusive policy outcomes that redistribute resources more equally. Also, this study highlights that the strength of civic relationships of members amplifies the ideas of marginalised groups in policy making, reducing the economic advantages of elites. Altogether, these results demonstrate that the institutionalisation of civic engagement is an essential determinant of how effectively societies sustain equality over time. Hence, to build upon these facts, we create our parameters, including these features as well. However, although civic participation is a valuable instrumental tool, researchers need to develop a concept that has greater empirical validation and explanatory power over the link between income inequality and intergenerational mobility (Green and Janmaat, 2011). The paper by Green and Janmaat defends a broader, multidimensional concept that encompasses civic participation, as well as inclusion and solidarity measures, which helps us get closer to the term civic cohesion.

As mentioned throughout this section, our aim is to integrate several variables to employ a comprehensive study that fills a gap in previous literature on the inequality-mobility link. All the concepts used in this study are illustrated in Figure 2. We begin by empirically validating the existence of the Great Gatsby Curve, as illustrated in Figure 1, and then demonstrate that the three clusters of countries visible in the curve are indeed present, and subsequently extend our analysis to investigate whether stronger civic cohesion mitigates the negative association between inequality and intergenerational mobility.

3 Methodology

In this section, we provide a description of the variable definitions, data sources used, and econometric methods to empirically validate our hypothesis.

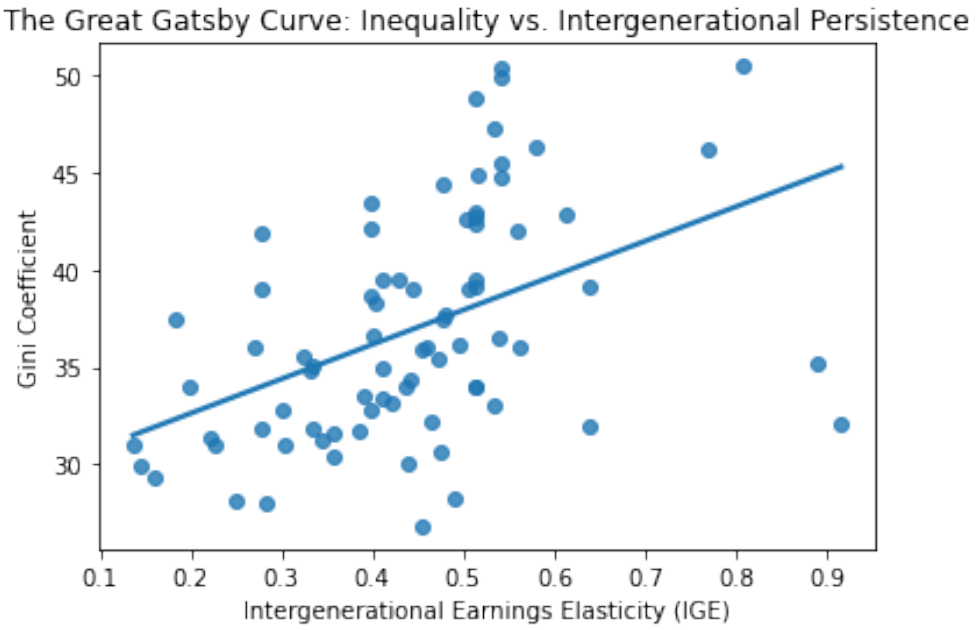

Figure 1: Projection of Great Gatsby Curve

Table 1: Macroeconomic Indicators and Intergenerational Mobility: Slovenia vs. Serbia

	Slovenia	**Serbia**
Real GDP Growth (avg., % p.a.)	∼2.2	∼1.6
GDP per Capita (USD, current)	∼34,000	∼13,500
Unemployment Rate (%)	∼3.4–3.7	∼7.2–9.0
Intergenerational Mobility Elasticity (IGE)	0.25	0.22
Time Frame for Indicators	Averages over the last two decades	
IGE Generations	Generations between 1980-2024	

3.1 Data Sources

Our approach integrates multiple variables from several cross-national sources:

- **World Inequality Database (WIID)** **United Nations University World Institute for Development Economics Research (UNU-WIDER) (2023)** – provides Gini coefficients based on national-level income and consumption surveys, filtered for high-quality, national coverage observations.
- **World Bank Databases** **World Bank (2025)** – used to supplement missing Gini values for countries not covered in WIID.
- **Intergenerational Elasticity (IGE)** values – sourced from the World Bank IGE Database World Bank Group (2025).

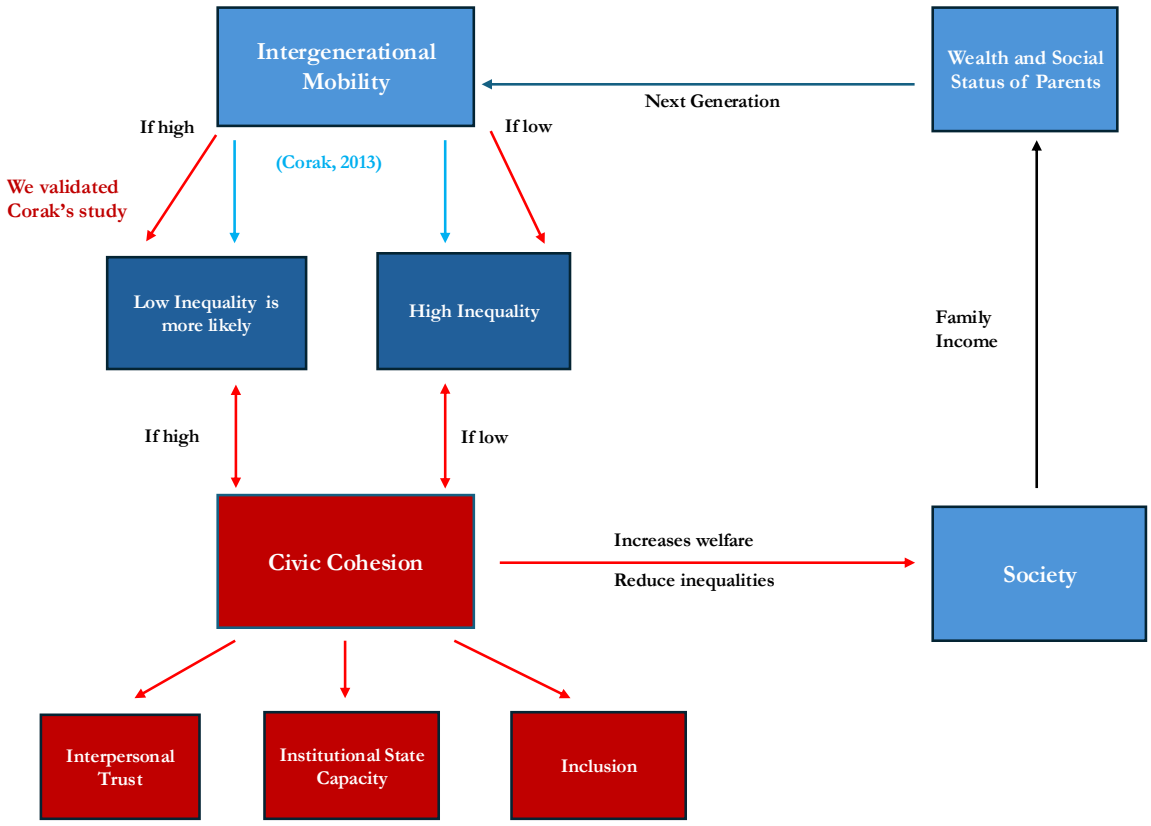

Figure 2: Concept Map

- **Gallup World Poll** Gallup, Inc. (2025) – provides cross-country indicators for trust, confidence in institutions, volunteering, tolerance, and participation used to construct the CCI.

By using these alternative resources, we build a pooled dataset across 78 countries from 2010 to 2024.

3.2 Constructing the Civic Cohesion Index (CCI)

To capture the theoretical definitions of social cohesion, we utilize Fonseca et al. (2019) to build a concise empirical proxy, which defines social cohesion as the state of strong interpersonal networks, mutual trust, and solidarity. And by building three dimensions for each concept, we build the Civic Cohesion Index as follows:

1. **Interpersonal Trust** — proxied by social indicators and polls measuring individual-level trust and prosocial behaviour.

Table 2: Measurement and Data Sources for Civic Cohesion Indicators

Indicator	Survey Question / Variable Definition	Scale	Dimension	Source
Helped_Stranger	In the past month, have you helped a stranger?	% Yes	Trust	GWP
Donated_Money	Have you donated money to charity in the past month?	% Yes	Trust	GWP
Volunteered_Time	Have you volunteered your time in the past month?	% Yes	Trust	GWP
Trust_People	Do you think most people can be trusted?	% Yes	Trust	GWP
Confidence_Judiciary	Do you have confidence in the judicial system?	% Yes	State	GWP
Trust_Government	Do you have confidence in the national government?	% Yes	State	GWP
Mean_Corruption	Worldwide Governance Indicator: Control of Corruption	Index $[-2.5, +2.5]$	State	WGI
Mean_Gov_Eff	Worldwide Governance Indicator: Government Effectiveness	Index $[-2.5, +2.5]$	State	WGI
Mean_Political_Stab.	Worldwide Governance Indicator: Political Stability	Index $[-2.5, +2.5]$	State	WGI
Mean_Civic_Partic.	Voice and Accountability Index	Index $[-2.5, +2.5]$	State	WGI
Migrant_Acceptance	Composite score on acceptance of migrants	Index (0–9)	Inclusion	GWP
Minority_People	Is your area a good place for minority people?	% Yes	Inclusion	GWP
Tolerance_Diversity	Do you think diversity is good for your community?	% Yes	Inclusion	WVS
Voiced_Opinion	Have you voiced an opinion to an official in the past year?	% Yes	Inclusion	GWP
WomenShare_LFP	Female labor force participation rate	% of total labor force	Inclusion	WDI

Notes: GWP = Gallup World Poll; WGI = Worldwide Governance Indicators (World Bank); WDI = World Development Indicators (World Bank); WVS = World Values Survey.

2. **Institutional State Capacity (State)** — measured by institutional quality and perceived effectiveness of governance.

3. **Social Inclusion (Inclusion)** — measures of tolerance and civic participation.

Table 2 illustrates the polls and indicators used for each precise poll question. Every poll and survey-based data used has at least 1000 randomly sampled observations over multiple years. The main poll source used was the Gallup World Poll.

3.2.1 Standardization and PCA

After building panel values for each dimension, all values were standardized to a zero mean and unit variance. Within each dimension, a Principal Component Analysis (PCA) was performed to extract the first component (PC1), which represents the latent factor score for the dimension. The use of PCA to understand correlated social indicators in a single dimension follows standard practice in constructing composite socioeconomic indices (Filmer and Pritchett, 2001; Vyas and Kumaranayake, 2006). And to stay consistent across a composite pooled dataset that is combined from multiple resources, each dimension score was rescaled by:

$$Score_{d,i} = \frac{X_{d,i} - \min(X_d)}{\max(X_d) - \min(X_d)}$$

where $d \in \{\text{Trust, State, Inclusion}\}$.

3.2.2 Index Aggregation

Although building a proxy for a social parameter, such as Civic Cohesion, makes it necessary to use multiple sources to capture the behaviour of countries as much as possible, we also used three different strategies to see whether our hypothesis that civic cohesion explains the differences in the inequality-mobility link under different settings. Since we built the index with three dimensions, assigning weights to each dimension in an unbiased and efficient way is a non-trivial assignment.

Following approaches in the composite indicator literature, we aggregate the dimension-specific scores using multiple weighting strategies to assess the robustness of our results (OECD, 2008). This enables us to assess whether the explanatory power of civic cohesion is contingent upon alternative aggregation schemes.

1. **Equal weighting:** Same ex-ante importance, measured as: $CCI_{equal} = \frac{1}{3}(Trust + State + Inclusion)$.

2. **Unsupervised PCA weighting:** Weights are proportional to explained variance of estimation ($w_d = \lambda_{d,PC1}$).

3. **Supervised (Gatsby-oriented) weighting:** First, estimate the regression:

$$IGE_i = \alpha + \beta_1 Trust_i + \beta_2 State_i + \beta_3 Inclusion_i + \epsilon_i$$

and utilized absolute standardized coefficients $|\hat{\beta}_d|$ as positive weights for:

$$CCI_{supervised} = \sum_d w_d Score_{d,i}.$$

Then we reach the supervised weights.

$$w_{Trust} = 0.237, \quad w_{State} = 0.556, \quad w_{Inclusion} = 0.207$$

3.3 Cluster Classification

To formally identify patterns in the inequality–mobility relationship, K-Means classification was tested using Least Squares, then extended based on the interaction of explanatory variables. The K-means algorithm partitions countries by minimizing within-cluster variation, allowing us to detect groups with similar inequality–mobility profiles without imposing a parametric structure. To determine the optimal number of clusters, we employed the Bayesian Information Criterion (BIC), indicating that a three-cluster specification strikes a possible balance between model fit and parsimony. Hierarchical clustering methods and Gaussian Mixture Models were also tested to confirm the optimal number of clusters. One remark is that this procedure is only descriptive in nature and does not provide economic interpretation at this stage. The substantive evaluation of these clusters, along with their underlying social and institutional foundations, is discussed in the results section.

3.4 Estimation Strategy

Before proceeding with the econometric analysis, we formally introduce the variables. *Intergenerational Income Elasticity (IGE)* measures the persistence of economic status across generations. It is estimated by

$$\ln(y_i^{\text{child}}) = \alpha + \beta \ln(y_i^{\text{parent}}) + \varepsilon_i, \tag{1}$$

See that higher values of β imply lower intergenerational mobility, indicating higher reflection of income advantages or disadvantages. *Gini Coefficient* quantifies income inequality and ranges from 0 (perfect equality) to 1 (maximum inequality). From Figure 3, it is evident that the X-axis refers to the persistence of income mobility. As elasticity increases, mobility decreases. One remark regarding the data is that IGE data may have certain overestimations

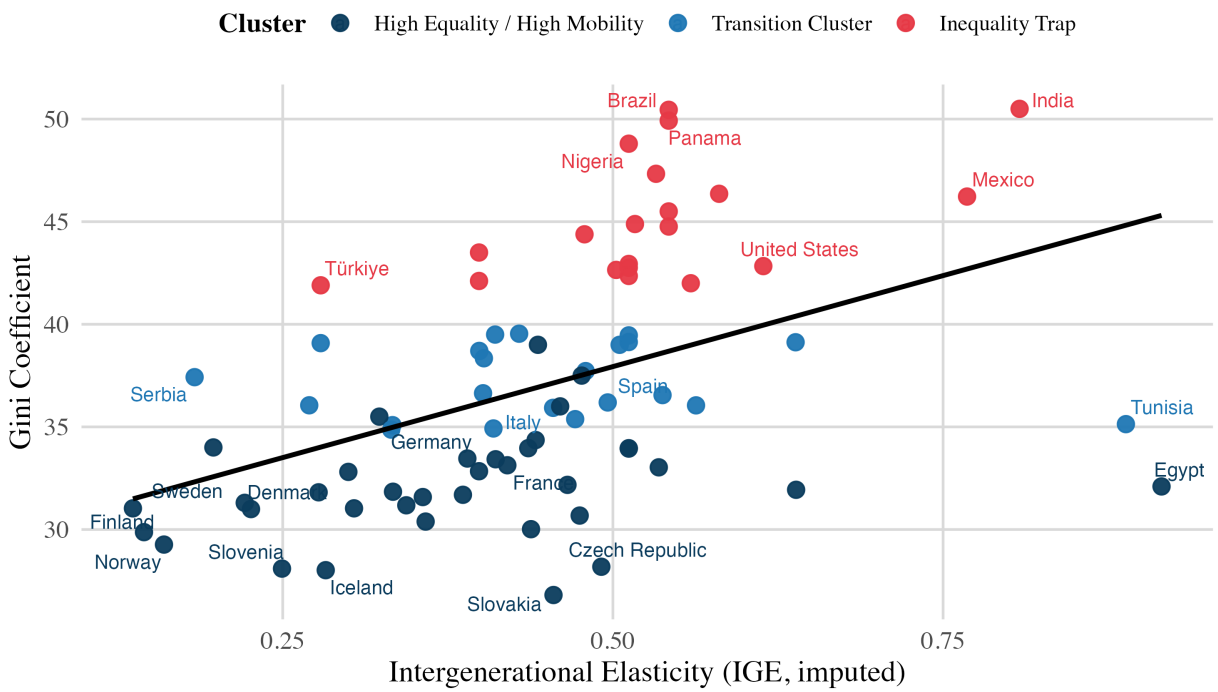

Figure 3: Clusters in the constructed Great Gatsby Curve

and underestimations for certain countries, including Tunisia, Egypt, and India. We cross-checked the number of resources and utilized the empirically valid one.

Using Least Squares, we estimate the baseline model, along with its extensions based on the interaction of explanatory variables, and a cluster fixed-effects model with dummy controls for robustness. All estimations were performed using standard Python software and libraries, including Seaborn and Matplotlib.

3.4.1 Baseline Models

$$Gini_i = \alpha + \beta_1 CCI_i + \epsilon_i \tag{2}$$

$$Gini_i = \alpha + \beta_1 CCI_i + \beta_2 IGE_i + \epsilon_i \tag{3}$$

3.4.2 Model Extension

$$Gini_i = \alpha + \beta CCI_i + \gamma IGE_i + \sum_{c=1}^{C-1} \theta_c D_{ic} + \varepsilon_i \tag{4}$$

Table 3: OLS Estimates: Gini Coefficient Regressed on Civic Cohesion and IGE

	(A1) CCI_equal	(A2) + IGE	(B1) CCI_PCA	(B2) + IGE	(C1) CCI_supervised	(C2) + IGE
CCI Index	-13.53***	-8.27*	-7.85***	-3.60	-9.77***	-6.42**
	(4.79)	(4.63)	(2.42)	(2.64)	(2.53)	(2.60)
IGE (mobility)		15.54***		14.62***		13.63***
		(4.10)		(4.56)		(4.18)
Constant	43.18***	33.88***	40.31***	32.01***	41.67***	34.01***
	(2.31)	(3.25)	(1.22)	(2.84)	(1.37)	(2.68)
Observations	78	78	78	78	78	78
R-squared	0.10	0.24	0.12	0.23	0.16	0.27
Adj. R-squared	0.08	0.22	0.11	0.21	0.15	0.25

Notes: Dependent variable is national Gini coefficient (income inequality). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.
Equal-weighted (A1–A2), PCA-weighted (B1–B2), and supervised (C1–C2) Civic Cohesion Indices are standardized to [0,1].

4 Results

4.1 Descriptive Overview

Figure 3 illustrates the country groups generated by the K-Means clustering procedure, based on standardized Gini coefficients and intergenerational earnings elasticity (IGE). Three visible groups are identified: (i) *High Equality–High Mobility* countries, largely composed of Nordic and Western European economies; (ii) *Transition* countries, mostly upper-middle income and Latin American economies; and (iii) *Inequality Trap* countries, dominated by low-income regions in Sub-Saharan Africa and South Asia. Additionally, Figure 4 visually illustrates the relationship between the Civic Cohesion Index (CCI) and income inequality across these clusters.

The distribution of the CCI displays substantial cross-country variation. The High Equality–High Mobility cluster signals the highest levels of civic cohesion (mean $CCI_{supervised} = 0.72$), while the Inequality Trap cluster remains relatively lower than the global median ($CCI_{supervised} = 0.41$). Descriptive statistics indicate a strong negative association between Gini and each CCI variant ($r = -0.43$ to -0.51), and a positive link between Gini and IGE ($r = 0.39$), consistent with the baseline Great Gatsby relationship proposed by Corak (2013) and with our baseline model.

4.2 Baseline Estimates

Table 3 reports the OLS outputs. Across all specifications, civic cohesion displays a negative and statistically significant link with income inequality. In model A1, a unit increase in CCI_{equal} is followed by a 13.5 reduction in Gini ($p < 0.01$). When intergenerational mobility is introduced (Model A2), the effect reduces to -8.3 but remains significant ($p < 0.10$), while IGE enters positively and significantly ($\beta_{IGE} = 15.5$, $p < 0.01$). These results are robust to both PCA-weighted (Models B1–B2) and supervised (Models C1–C2) variants of the index, with R^2 improving from 0.10 in bivariate to 0.27 in full models.

4.3 Interaction and Heterogeneity

To test whether the impact of civic cohesion relies on a country's mobility regime, we estimate:

$$Gini_i = \alpha + \beta\, CCI_i + \gamma\, IGE_i + \delta(CCI_i \times IGE_i) + \varepsilon_i.$$

Although the interaction term is statistically insignificant, the R^2 increases to 0.34, indicating that the addition of non-linear interactions enhances the model's explanatory power. Even though the p-values of Civic Cohesion become insignificant under certain specifications, the signs remain unchanged, and statistical significance is achieved under different CCI types. Therefore, our approach remains relatively robust, considering that the cross-country nature of these results is not a sign of weaknesses in the power of our model, but rather its ability to adapt in different tests. The results are stated in Table 5.

4.4 Cluster-Specific Results

We estimate a pooled model with cluster fixed effects to assess heterogeneity across clusters.

$$Gini_i = \alpha + \beta CCI_i + \gamma IGE_i + \sum_{c=1}^{C-1} \theta_c D_{ic} + \varepsilon_i$$

We include cluster fixed effects using dummy variables. One cluster is omitted as the reference category to avoid perfect multicollinearity. The omitted group is the High Equality–High Mobility cluster, which serves as the natural benchmark in our analysis. And we observe the following conclusions from Table 4:

- For the *High Equality–High Mobility* cluster (the reference group), the estimated association between civic cohesion and income inequality remains negative ($\beta = -2.84$, $p < 0.10$). This suggests that even among advanced economies with relatively strong opportunity structures, higher civic cohesion is associated with lower levels of inequality.

- Relative to the *High Equality–High Mobility* benchmark, the *Transition cluster* displays higher baseline inequality. Once cluster controls are introduced, the overall association between civic cohesion and inequality becomes statistically weaker, suggesting more institutional heterogeneity. greater institutional heterogeneity within this group.

- Relative to the benchmark cluster, countries in the *Inequality Trap* regime show substantially more inequality. In this specification, intergenerational mobility stays strongly linked with inequality ($\beta_{IGE} \approx 10$, $p < 0.05$), while the estimated association between civic cohesion and inequality becomes statistically weaker, indicating that entrenched mobility constraints may dominate distributional outcomes.

Overall, the coefficient of β_{CCI} across clusters advocates the hypothesis that cohesion strengthens as institutional effectiveness increases.

Table 4: OLS Estimates of Gini on Civic Cohesion and Mobility (With and Without Cluster Controls)

	(1) **CCI_equal**	(2) + Cluster	(3) **CCI_PCA**	(4) + Cluster	(5) **CCI_supervised**	(6) + Cluster
CCI Index	-8.7445**	-2.7787	-4.4200*	-1.2483	-6.5037***	-1.9262
	(4.051)	(2.210)	(2.267)	(1.159)	(2.251)	(1.227)
IGE (mobility)	22.0206***	6.0426***	20.6038***	5.6790***	19.2933***	5.4642***
	(4.646)	(2.025)	(5.147)	(2.155)	(4.801)	(2.017)
Transition Cluster (dummy)		4.5901***		4.6094***		4.5783***
		(0.673)		(0.687)		(0.663)
Inequality Trap Cluster (dummy)		11.4577***		11.5001***		11.3499***
		(0.919)		(0.902)		(0.914)
Constant	31.6602***	31.4013***	30.1395***	30.7949***	31.9395***	31.3290***
	(3.352)	(1.484)	(2.916)	(1.278)	(2.814)	(1.232)
Observations	74	74	74	74	74	74
R-squared	0.84	0.83	0.84	0.83	0.84	0.83

4.5 Robustness Check

To assess the sensitivity of our results to omitted variable bias, we apply the approach of Oster (2019), which evaluates coefficient stability under proportional selection between observables and unobservables. The sensitivity analysis we implemented shows that unobserved selection would need to exceed observed selection to fully eliminate the estimated effect of civic cohesion ($(\Delta = 1.42)$). This magnitude suggests that omitted variable bias would need to be implausibly strong—relative to the set of observed economic and social controls already included—to account for our findings. While this approach does not claim causal identification, it offers a transparent benchmark for evaluating the robustness of the estimated association.

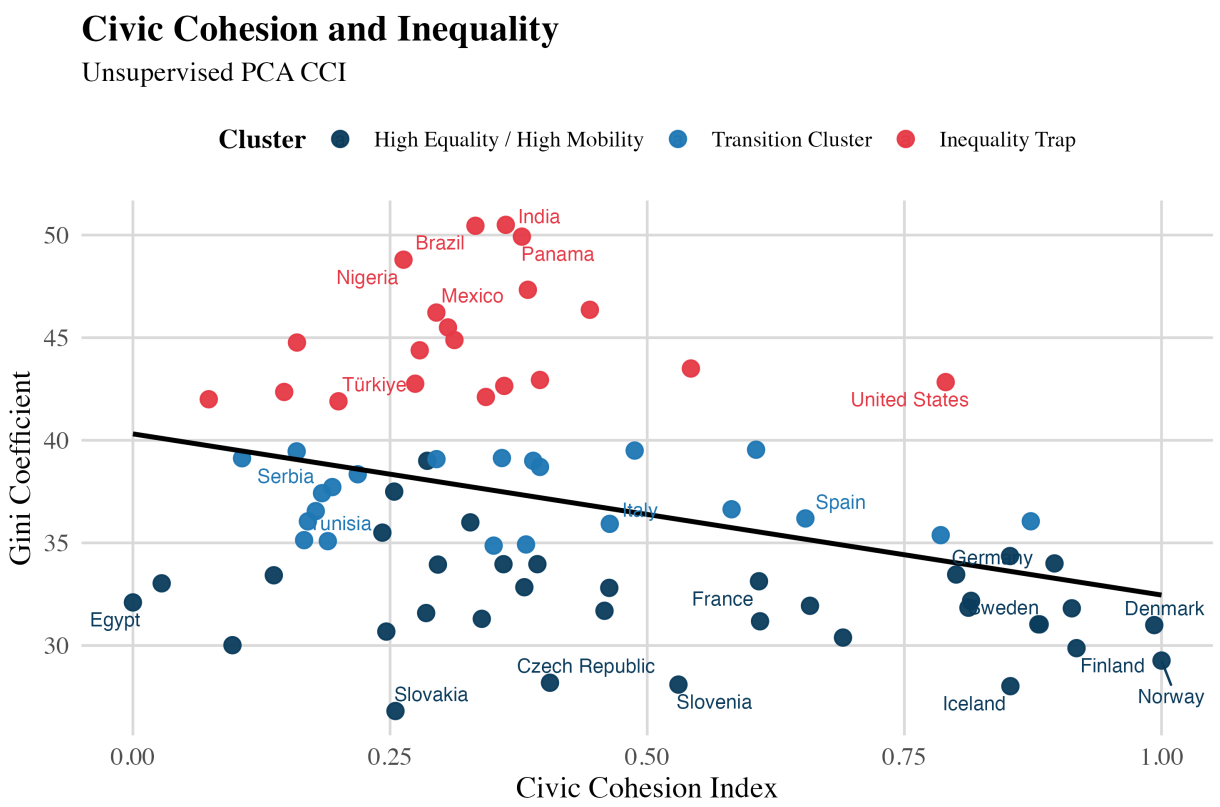

Figure 4: Civic Cohesion versus Income Inequality

Moreover, the Oster sensitivity result is consistent with our claim of civic cohesion as a long-run structural component rather than a short-run explanatory variable. These support the interpretation of civic cohesion as a robust and unbiased structural proxy for cross-country differences in inequality. Taken together, it strengthens confidence in the relevance of civic cohesion in shaping Gini coefficients.

In standardized estimations, a one-standard-deviation increase in civic cohesion is associated with a 0.72-standard-deviation reduction in income inequality, even after controlling for intergenerational mobility. Additional tests were conducted to examine the results. There is no substantial sensitivity to differences in model settings. Table 6 summarises all the results on fundamental robustness.

Table 5: Robustness Tests of Civic Cohesion and Income Inequality

Model Type	**CCI Type**	β_{CCI}	p_{CCI}	β_{IGE}	p_{IGE}	$\beta_{CCI \times IGE}$	Adj. R^2
Interaction Models (OLS, HC3 Robust)							
Equal Interaction	Equal	-13.77	0.272	15.85	0.323	12.27	0.315
Unsupervised PCA Interaction	PCA	-4.05	0.434	21.09	**0.016**	-0.97	0.306
Supervised Interaction	Supervised	-3.97	0.486	22.72	**0.014**	-6.25	0.340
Log(IGE) Transformation (OLS, HC3 Robust)							
Equal (log IGE)	Equal	-8.83	**0.029**	7.27	**0.000**	—	0.288
Unsupervised (log IGE)	PCA	-4.63	**0.043**	6.69	**0.000**	—	0.283
Supervised (log IGE)	Supervised	-6.84	**0.002**	6.22	**0.000**	—	**0.319**
Outlier-Robust Regression (Huber M-Estimator)							
Equal (RLM)	Equal	-9.43	**0.029**	21.37	**0.000**	—	—
Unsupervised (RLM)	PCA	-4.58	0.068	20.19	**0.000**	—	—
Supervised (RLM)	Supervised	-6.70	**0.008**	18.68	**0.000**	—	—

Table 6: Diagnostic Summary: Multicollinearity and Residual Tests

Test	**Equal**	**PCA**	**Supervised**	**Threshold/Remark**
VIF (CCI)	1.27	1.30	1.24	< 5: No multicollinearity
VIF (IGE)	1.30	1.30	1.30	< 5: No multicollinearity
Durbin–Watson	1.91	1.89	1.96	≈ 2: No autocorrelation
Jarque–Bera p-value	0.96	0.97	0.99	> 0.05: Normal residuals
HC3 robust SE used	Yes	Yes	Yes	Corrects heteroskedasticity
Outlier influence (RLM)	Stable	Stable	Stable	No influential cases

5 Discussion and Concluding Remarks

5.1 An Augmented Interpretation of the Great Gatsby Curve

Our empirical findings support the Great Gatsby Curve by introducing the underlying social and institutional dynamics. Although the original one captures the mobility-inequality link in a persistent fashion, differences in civic cohesion allow us to explain why countries with similar mobility outcomes exhibit different inequality levels. Motivated by Durlauf et al. (2012), we extend the idea that economic interaction may not be governed by a global equilibrium. Instead, Durlauf and co-authors argue that similar economic mechanisms may execute quite differently across economies that are steered via social-institutional regimes, resulting in heterogeneous outcomes even when mean relationships happen to be stable. Through this lens, we argue that the clustering observed along the Great Gatsby Curve reflects regime-specific results, with civic cohesion measuring the characteristics that actually test these regimes. Hence, Durlauf's multiple-equilibria framework provides a natural theoretical foundation for interpreting civic cohesion as a structural proxy that measures economic activity with social foundations.

5.2 Interpretation of the Clusters

The existence of various clusters along the Great Gatsby Curve should not be viewed solely as a statistical finding, but rather as a sign of potential social-institutional regimes. One way to put it is that countries may not simply shift along a single inequality-mobility continuum, but rather be classified into relatively stable positions shaped by common institutional patterns, social norms, and policy environments. This interpretation aligns closely with the comparative political economy literature, which has noted that advanced economies operate under distinct policies rather than homogeneous institutional frameworks (Hall and Soskice, 2001). To link our findings with the theory, we also observe fundamental explanations and alignment in the study of Esping-Andersen (1990). The classification of welfare state regimes illustrates how countries with similar income levels can systematically shift in terms of redistribution and labour market institutions These regime differences might be generating persistent differences in inequality-mobility outcomes, even in advanced economies So, it is helpful to understand why the *High-Equality / High-Mobility cluster* is largely dominated by the Nordic and post-communist countries Within this framework, this dominance represents the convergence of several historical paths toward similar institutional equilibria We believe that Nordic countries exhibit the social-democratic welfare regime characterised by universalistic social policies, coordinated labour markets, and high levels of state capacity, which are traditionally known to limit income dispersion On the other hand, various post-communist countries demonstrated a trajectory in the first cluster that might be shaped by legacies of wage compression, high access to education, and relatively egalitarian human capital distributions inherited from the socialist period In contrast to GermGermany'sation within the *high-cohesion cluster*, countries such as France, Italy, and Spain tend to be in the transition cluster despite their income levels. This divergence may reflect the fundamental differences in how social and economic conflicts are institutionally organized. As Hall and Soskice argues that Germany can be classified as a coordinated market, which refers to the idea that firms don't rely primarily on prices and markets to solve coordination problems; instead, they coordinate through collective organisation, market institutions, and negotiations. We believe that this effect mediates negotiated adjustment and limits the persistence of income disparities across generations. Conversely, Southern European economies rely more heavily on the labour market and price dynamics, which may weaken the limits of existing welfare institutions. Therefore, they tend to demonstrate transitional positions along the Great Gatsby Curve, consistent with a distinct but lower cohesive institutional equilibrium.

5.3 Civic Cohesion As the Regime Mechanism

In addition to explaining our empirical findings, supported by theory, we also argue that civic cohesion is not merely an index but a mechanism that differentiates the social-institutional pattern across countries. A large body of literature on social capital emphasizes that trust,

civic participation, and shared norms are long-term societal characteristics that differ from the functions of economic and political institutions (Putnam, 2000; Knack and Keefer, 1997). In this sense, civic cohesion does not operate as a short-term policy variable; instead, it influences how the individual-institution link functions, and how agents interact with the state they are part of.

Based on our insight, we believe that high levels of civic cohesion supplement institutional legitimacy and political credibility, resulting in governments implementing redistributive and mobility-increasing policies more effectively. These elements reinforce the idea of creating self-sustaining, cohesive social equilibria. Additionally, the dimensions of civic cohesion, trust, and civic engagement influence the expectations related to economic fairness and opportunity, thereby shaping the link between societal components. Social characteristics change slowly and help explain cross-country differences in response to similar economic shocks when examined in the long run (Algan and Cahuc, 2010). Therefore, our index aligns with the concept of this comprehensive and long-term evaluation of accumulated social factors, and it is theoretically supported in this regard.

5.4 Limitations and Directions for Future Research

This study has several limitations that need direction for future research. First, our analysis is inherently correlational rather than causal since it is conducted at the cross-country level. Our intentions were also to include dynamic reverse causality tests based on time dimensions to validate the idea. A reverse causality test in this sense can be executed to examine the interconnection between previous lags of CCI and subsequent lags of income inequality. However, due to data limitations, particularly in the temporal dimension, we were unable to deliver this analysis. The second limitation is that although results highlight robust links between civic cohesion, inequality, and intergenerational mobility, identifying a causal link would require different research frameworks, including natural experiments or longitudinal micro-level data. Since civic cohesion is measured through an aggregate index that proxies multiple social dimensions, this approach yields many positive results. Yet, it necessarily abstracts from within-country heterogeneity and regional variation. To capture regional behavior more effectively, the civic cohesion index can be aggregated through specific weight assignments that provide a more robust theoretical basis for understanding the behavior. A critical issue regarding the construction of the index is that survey-based data should be sourced from a survey that meets scientific standards. Therefore, future research could examine national data from a reliable source and investigate how civic cohesion operates across multiple regions within a single nation or between certain nations or continents.

Finally, while the clustering method reveals meaningful regime patterns, future work may investigate the dynamic link between transitions between clusters using suitable methods and data. Whether certain countries converge or diverge over time, and whether their dimension

scores change accordingly.

5.5 Concluding Remarks

The findings presented in this paper demonstrate that the link between inequality and intergenerational mobility can be examined through an Augmented Great Gatsby Curve, where civic cohesion serves as a mediator between the two variables. While the negative link between inequality and mobility remains robust, the results imply that countries are clustered around this link in a way that the relationship itself can not explain the reasons why they are clustered. By constructing a novel Civic Cohesion Index and examining cross-country patterns as regime-specific outcomes, we demonstrate that differences in trust, institutional capacity, and social inclusion shape how mobility transmits into inequality. Rather than challenging the original Great Gatsby Curve, our empirical framework enhances its interpretation by emphasizing the significance of long-term social foundations and institutional equilibria in shaping the persistence of inequality. Overall, the findings suggest that civic cohesion plays a core role in comparative political economy, helping to explain why countries with similar mobility outcomes can nonetheless exhibit significant differences in inequality levels. For policy-making, civic cohesion should be seen as a complementary policy layer that increases the effectiveness of redistributive and mobility-enhancing policies, rather than as a standalone policy idea. More importantly, the CCI index framework can be used as a proxy for future increases in inequality, even when mobility indicators remain stable.

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